Do-it-yourself service precautions

If you perform maintenance yourself, be sure to follow the correct procedure as given in these sections.

Items	Parts and tools
Battery condition (→P. 382)	• Warm water • Baking soda • Grease • Conventional wrench (for terminal clamp bolts)
Brake fluid level (→P. 380)	• FMVSS No.116 DOT 3 or SAE J1703 brake fluid • Rag or paper towel • Funnel (used only for adding brake fluid)
Engine coolant level (→P. 378)	• "Toyota Super Long Life Coolant" or similar high-quality ethylene glycol-based non-silicate, non-amine, non-nitrite and non-borate coolant with long-life hybrid organic acid technology. For the U.S.A.: "Toyota Super Long Life Coolant" is pre-mixed with 50% coolant and 50% deionized water. For Canada: "Toyota Super Long Life Coolant" is pre-mixed with 55% coolant and 45% deionized water. • Funnel (used only for adding engine coolant)

Items	Parts and tools
Engine oil level (→P. 374)	• "Toyota Genuine Motor Oil" or equivalent • Rag or paper towel, funnel (used only for adding engine oil)
Fuses (→P. 408)	• Fuse with same amperage rating as original
Headlight aim (→P. 422)	• Phillips-head screwdriver
Radiator and condenser (→P. 380)	—
Tire inflation pressure (→P. 397)	• Tire pressure gauge • Compressed air source
Washer fluid (→P. 385)	• Water washer fluid containing anti-freeze (for winter use) • Funnel

CAUTION

The engine compartment contains many mechanisms and fluids that may move suddenly, become hot, or become electrically energized. To avoid death or serious injury, observe the following precautions.

When working on the engine compartment:

- Keep hands, clothing, and tools away from the moving fan and engine drive belt.
- Be careful not to touch the engine, radiator, exhaust manifold, etc. right after driving as they may be hot. Oil and other fluids may also be hot.
- Do not leave anything that may burn easily, such as paper or rags, in the engine compartment.
- Do not smoke, cause sparks or expose an open flame to fuel or the battery. Fuel and battery fumes are flammable.
- Be extremely cautious when working on the battery. It contains poisonous and corrosive sulfuric acid.

When working near the electric cooling fan or radiator grille:

Be sure the "ENGINE START STOP" switch is OFF.
With the "ENGINE START STOP" switch in IGNITION ON mode, the electric cooling fan may automatically start to run if the air conditioning is on and/or the coolant temperature is high. (→P. 380)

Safety glasses

Wear safety glasses to prevent flying or falling material, fluid spray, etc. from getting in the eyes.

NOTICE

If you remove the air cleaner filter

Driving with the air cleaner filter removed may cause excessive engine wear due to dirt in the air. Also, a backfire could cause a fire in the engine compartment.

Hood

Release the lock from the inside of the vehicle to open the hood.

Pull the hood release lever.

The hood will pop up slightly.

Lift the auxiliary catch lever and lift the hood.

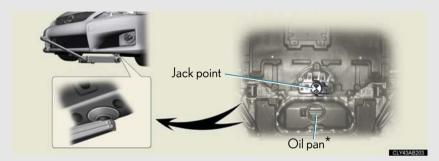
CAUTION

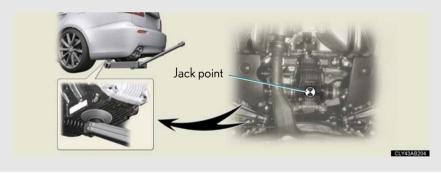
■ **Pre-driving check**

Check that the hood is fully closed and locked.
If the hood is not locked properly it may open while the vehicle is in motion and cause an accident, which may result in death or serious injury.

Positioning a floor jack

When raising your vehicle with a floor jack, position the jack correctly. Improper placement may damage your vehicle or cause injury.

n Front

*: Take care when positioning a floor jack, as it is easy to mistake the engine oil pan for the jack point.

n Rear

CAUTION

■ **When raising your vehicle:**

Make sure to observe the following to reduce the possibility of death or serious injury.

CLY43AB187

- Lift up the vehicle using a floor jack such as the one shown in the illustration.
- When using a floor jack, follow the instructions of the manual provided with the jack.
- Do not use the jack that was supplied with your vehicle.
- Do not put any part of your body or get underneath the vehicle supported only by the floor jack.
  Always use automotive jack stands on a solid, flat, level surface.
- Do not start the engine while the vehicle is supported by the floor jack.
- Stop the vehicle on level firm ground, firmly set the parking brake and put the shift lever in P.
- Make sure to set the floor jack properly at the jack point.
  Raising the vehicle with an improperly positioned floor jack will damage the vehicle and may cause the vehicle to fall off the floor jack.
- Do not raise the vehicle while someone is in the vehicle.
- When raising the vehicle, do not place any objects on top of or underneath the floor jack.

Engine compartment

1 Battery (→P. 382)

2 Engine oil level dipstick (→P. 374)

3 Engine oil filler cap (→P. 374)

4 Brake fluid reservoir (→P. 380)

5 Fuse boxes (→P. 408)

6 Washer fluid tank (→P. 385)

7 Electric cooling fans

8 Condenser (→P. 380)

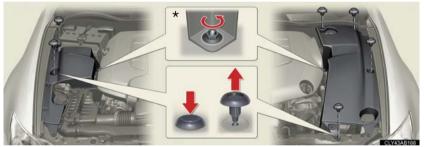
9 Radiator (→P. 380)

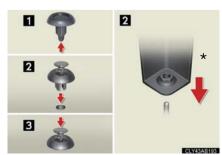
10 Engine coolant reservoir (→P. 378)

Engine compartment cover

Removing the engine compartment cover

▶ Front

▶ Outside

*: Using a tool, turn the nut until the engine compartment cover can be removed.

Installing the clips and nut

1 Press the tip of the clip against a hard surface, such as a desk, to allow the center part of the clip to be pushed up.

2 Insert

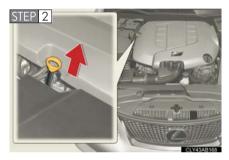
*: Push it down as far as it will go.

3 Press

Engine oil

With the engine at operating temperature and turned off, check the oil level on the dipstick.

Checking the engine oil

STEP 1 Park the vehicle on level ground. After turning off the engine, wait more than five minutes for the oil to drain back into the bottom of the engine.

STEP 2 Hold a rag under the end and pull the dipstick out.

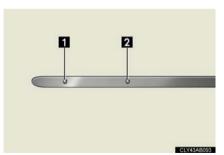
STEP 3 Wipe the dipstick clean.

STEP 4 Reinsert the dipstick fully.

STEP 5 Holding a rag under the end, pull the dipstick out and check the oil level.

STEP 6 Wipe the dipstick and reinsert it fully.

1 Low

2 Full

Adding engine oil

If the oil level is below or near the low level mark, add engine oil of the same type as already in the engine.

Make sure to check the oil type and prepare the items needed before adding oil.

Engine oil selection	→P. 493
Oil quantity (Low → Full)	1.6 qt. (1.5 L, 1.3 Imp. qt.)
Items	Clean funnel

STEP 1 Remove the oil filler cap by turning it counterclockwise.

STEP 2 Add engine oil slowly, checking the dipstick.

STEP 3 Install the oil filler cap by turning it clockwise.

Engine oil consumption

- The amount of engine oil consumed depends on the oil viscosity, the quality of the oil and the way the vehicle is driven.
- More oil is consumed under driving conditions such as high speeds and frequent acceleration and deceleration.
- A new engine consumes more oil.
- When judging the amount of oil consumption, keep in mind that the oil may have become diluted, making it difficult to judge the true level accurately.
- Oil consumption: Max. 1.1 qt./600 miles, 0.9 Imp. qt./600 miles (1.0 L per 1000 km)
- If your vehicle consumes more than 1.1 qt. (1.0 L, 0.9 Imp. qt.) every 600 miles (1000 km), contact your Lexus dealer.

After changing the engine oil (U.S.A. only)

The oil change system should be reset. Perform the following procedures:

STEP 1 Switch the display to the odometer (→P. 139) when the engine is running.

STEP 2 Turn the “ENGINE START STOP” switch OFF.

STEP 3 While pressing the trip meter reset button, set the “ENGINE START STOP” switch to IGNITION ON mode (but do not start the engine because otherwise the reset mode will be cancelled). Continue to press and hold the button until the trip meter displays “000000”.

CAUTION

Used engine oil

- Used engine oil contains potentially harmful contaminants which may cause skin disorders such as inflammation or skin cancer, so care should be taken to avoid prolonged and repeated contact. To remove used engine oil from your skin, wash thoroughly with soap and water.
- Dispose of used oil and filters only in a safe and acceptable manner. Do not dispose of used oil and filters in household trash, in sewers or onto the ground.
  Call your Lexus dealer, service station or auto parts store for information concerning recycling or disposal.
- Do not leave used engine oil within the reach of children.

NOTICE

To prevent serious engine damage

Check the oil level on a regular basis.

When replacing the engine oil

- Be careful not to spill engine oil on the vehicle components.
- Avoid overfilling, or the engine could be damaged.
- Check the oil level on the dipstick every time you refill the vehicle.
- Be sure the engine oil filler cap is properly tightened.

Engine coolant

The coolant level is satisfactory if it is between the “FULL” and “LOW” lines on the reservoir when the engine is cold.

1 Reservoir cap

2 “FULL”

3 “LOW”

If the level is on or below the “LOW” line, add coolant up to the “FULL” line.

- **If the coolant level drops within a short time after replenishing**

  Visually check the radiator, hoses, coolant reservoir cap, drain cock and water pump.
  If you cannot find a leak, have your Lexus dealer test the cap and check for leaks in the cooling system.

- **Coolant selection**

  Only use "Toyota Super Long Life Coolant" or similar high-quality ethylene glycol-based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.

  U.S.A.: "Toyota Super Long Life Coolant" is a mixture of 50% coolant and 50% deionized water. (Enabled: -31°F [-35°C])

  Canada: "Toyota Super Long Life Coolant" is a mixture of 55% coolant and 45% deionized water. (Enabled: -44°F [-42°C])

  For more details about engine coolant, contact your Lexus dealer.

- **When the engine is hot**

  Do not remove the coolant reservoir cap.
  The cooling system may be under pressure and may spray hot coolant if the cap is removed, causing burns or other injuries.

NOTICE

- **When adding engine coolant**

  Coolant is neither plain water nor straight antifreeze. The correct mixture of water and antifreeze must be used to provide proper lubrication, corrosion protection and cooling. Be sure to read the antifreeze or coolant label.

- **If you spill coolant**

  Be sure to wash it off with water to prevent damage to parts or paint.

Radiator and condenser

Check the radiator and condenser, and clear any foreign objects.
If either of the above parts are extremely dirty or you are not sure of their condition, have your vehicle checked by your Lexus dealer.

 CAUTION

■ **When the engine is hot**

Do not touch the radiator or condenser, as they may be hot and you may be burned.

Brake fluid

■ Checking fluid level

The brake fluid level should be between the “MAX” and “MIN” lines on the tank.

Adding fluid

Make sure to check the fluid type and prepare the necessary items.

Fluid type	FMVSS No.116 DOT 3 or SAE J1703 brake fluid
Items	Clean funnel

Brake fluid can absorb moisture from the air

Excess moisture in the fluid can cause a dangerous loss of braking efficiency. Use only newly opened brake fluid.

CAUTION

When filling the reservoir

Take care because brake fluid can harm your hands or eyes and damage painted surfaces.
If fluid gets on your hands or in your eyes, flush the affected area with clean water immediately.

If you still experience discomfort, see a doctor.

NOTICE

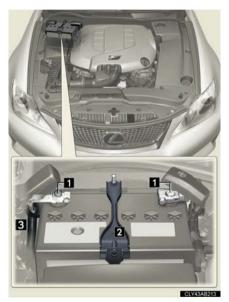
If the fluid level is low or high

It is normal for the brake fluid level to go down slightly as the brake pads wear or when the fluid level in the accumulator is high.
If the reservoir needs frequent refilling, it may indicate a serious problem.

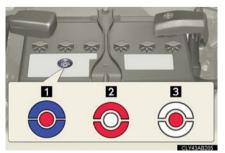
Battery

Check the battery as follows.

Battery exterior

Make sure that the battery terminals are not corroded and that there are no loose connections, cracks, or loose clamps.

1 Terminals
2 Hold-down clamp
3 Ground cable

Checking battery condition (vehicles with the battery indicator)

Check the battery condition using the indicator color.

1 Blue: Good condition
2 Red: Not working properly. Have the battery checked by your Lexus dealer.
3 White: Charging is necessary. Have the vehicle inspected by your Lexus dealer.

Before recharging

When recharging, the battery produces hydrogen gas which is flammable and explosive. Therefore, before recharging:

- If recharging with the battery installed on the vehicle, be sure to disconnect the ground cable.
- Make sure the power switch on the charger is off when connecting and disconnecting the charger cables to the battery.

After recharging/reconnecting the battery

In some cases, the engine may not start. Follow the procedure below to initialize the system.

STEP 1 Shift the shift lever to "P", and turn the "ENGINE START STOP" switch OFF.

STEP 2 Open and close any of the doors.

STEP 3 Start the engine. (If the engine does not start first time, repeat the procedure.)

If the engine will not start even after multiple attempts at the above method, contact your Lexus dealer.

CAUTION

Chemicals in the battery

A battery contains poisonous and corrosive sulfuric acid and may produce hydrogen gas which is flammable and explosive. To reduce the risk of death or serious injury, take the following precautions while working on or near the battery:

- Do not cause sparks by touching the battery terminals with tools.
- Do not smoke or light a match near the battery.
- Avoid contact with eyes, skin and clothes.
- Never inhale or swallow electrolyte.
- Wear protective safety glasses when working near the battery.
- Keep children away from the battery.

CAUTION

- **Where to safely charge the battery**

  Always charge the battery in an open area. Do not charge the battery in a garage or closed room where there is not sufficient ventilation.

- **How to recharge the battery**

  Only perform a slow charge (5 A or less). The battery may explode if charged at a quicker rate.

- **Emergency measures regarding electrolyte**

  - If electrolyte gets in your eyes
    Flush your eyes with clean water for at least 15 minutes and get immediate medical attention. If possible, continue to apply water with a sponge or cloth while traveling to the nearest medical facility.
  - If electrolyte gets on your skin
    Wash the affected area thoroughly. If you feel pain or burning, get medical attention immediately.
  - If electrolyte gets on your clothes
    It can soak through clothing on to your skin. Immediately take off the clothing and follow the procedure above if necessary.
  - If you accidentally swallow electrolyte
    Drink a large quantity of water or milk. Follow with milk of magnesia, beaten raw egg or vegetable oil. Get emergency medical attention immediately.

NOTICE

- **When recharging the battery**

  Never recharge the battery while the engine is running. Also, be sure all accessories are turned off.

Washer fluid

If any washer does not work or the warning message appears on the multi-information display, the washer tank may be empty. Add washer fluid.

⚠ CAUTION

■ **When adding washer fluid**

Do not add washer fluid when the engine is hot or running, as washer fluid contains alcohol and may catch fire if spilled on the engine etc.

⚠ NOTICE

■ **Do not use any fluid other than washer fluid**

Do not use soapy water or engine antifreeze instead of washer fluid.
Doing so may cause streaking on the vehicle's painted surfaces.

■ **Diluting washer fluid**

Dilute washer fluid with water as necessary.
Refer to the freezing temperatures listed on the washer fluid tank.

Tires

Replace tires in accordance with maintenance schedules and tread wear.

Checking tires

1 New tread

2 Treadwear indicator

3 Worn tread

The location of treadwear indicators is shown by the "TWI" or "△ " marks, etc., molded on the sidewall of each tire.

The tire pressure warning system

Your Lexus is equipped with a tire pressure warning system that uses tire pressure warning valves and transmitters to detect low tire inflation pressure before serious problems arise. (→P. 444, 453)

Installing tire inflation pressure warning valves and transmitters

When replacing tires or wheels, tire pressure warning valves and transmitters must also be installed.

When new tire pressure warning valves and transmitters are installed, new tire pressure warning valve and transmitter ID codes must be registered in the tire pressure warning computer and the tire pressure warning system must be initialized. Have tire pressure warning valve and transmitter ID codes registered by your Lexus dealer. (→P. 389)

Initializing the tire pressure warning system

- **The tire pressure warning system must be initialized when the tire inflation pressure is changed (such as when changing traveling speed.)**

  When the tire pressure warning system is initialized, the current tire inflation pressure is set as the benchmark pressure.

- **How to initialize the tire pressure warning system**

  To initialize the system, use the satellite switch. (→P. 319)

STEP 1 Park the vehicle in safe place and turn the “ENGINE START STOP” switch to OFF.

While the vehicle is moving, initialization is not performed.

STEP 2 Adjust the tire inflation pressure to the specified cold tire inflation pressure level. (→P. 498)

Make sure to adjust the tire pressure to the specified cold tire inflation pressure level. The tire pressure warning system will operate based on this pressure level.

STEP 3 Turn the “ENGINE START STOP” switch to IGNITION ON mode.

STEP 4

1 The tire inflation pressure initialization setting display

Continue to press “<” or “>” until the initialization setting display appears.

It may take several minutes to complete the setting. Wait for several minutes before turning the “ENGINE START STOP” switch to OFF if necessary.

2 Recording tire inflation pressure settings

Press and hold the “ON/OFF” button until the tire pressure warning light blinks slowly 3 times and the message “PRESSURE INITIAL” showing that the initial setting is complete is displayed on the multi-information display.

STEP 5 Wait for a few minutes with the IGNITION ON mode, and then turn the “ENGINE START STOP” switch to OFF.

Registering and selecting ID codes

To select tire pressure warning valve and transmitter ID codes, use the satellite switch. (→P. 319)

■ Registering ID codes

2 sets of tire pressure warning valve and transmitter ID codes can be registered. Once a second set of tires is registered at “2ND”, you can switch between tire set settings simply by pressing the “ON/OFF” button.

There are 2 settings:

“MAIN” position: The ID code of the tire pressure warning valve and transmitter on the tires originally installed on the vehicle is registered.

“2ND” position: The ID code is not registered. When you replace a new set of tires, purchase tire pressure warning valves and transmitters from your Lexus dealer and have the new ID code registered by your Lexus dealer.

Selecting ID codes

When replacing tires, make sure to select the ID code set that matches the new tire set. If the ID code is set to the wrong tire setting, the tire pressure warning system will not operate properly. After driving for about 20 minutes, the tire pressure warning light comes on after blinking for 1 minute to indicate a system malfunction.

1 Tire pressure warning valve and transmitter ID code settings display

Press “<” or “>” repeatedly until the setting display appears.

2 Switching ID codes

Press the “ON/OFF” button to switch between “MAIN” and “2ND” ID codes.

- **When to replace your vehicle's tires**

Tires should be replaced if:

- You have tire damage such as cuts, splits, cracks deep enough to expose the fabric or bulges indicating internal damage
- A tire goes flat repeatedly or cannot be properly repaired due to the size or location of a cut or other damage

If you are not sure, consult with your Lexus dealer.

- **Replacing tires and wheels**

If the ID code of the tire pressure warning valve and transmitter is not registered, the tire pressure warning system will not work properly. After driving for about 20 minutes, the tire pressure warning light comes on after blinking for 1 minute to indicate a system malfunction.

- **Tire life**

Any tire over 6 years old must be checked by a qualified technician even if it has seldom or never been used or damage is not obvious.

- **If the tread on snow tires wears down below 0.16 in. (4 mm)**

The effectiveness of snow tires is lost.

- **Tire rotation**

It is not possible to rotate the tires, as each tire and wheel is designed only for its original position on the vehicle.

- **Tire replacement**

→P. 402

- **Low profile tires**

Generally, low profile tires will wear more rapidly and tire grip performance will be reduced on snowy and/or icy roads when compared to standard tires. Be sure to use snow tires on snowy and/or icy roads and drive carefully at a speed appropriate for road and weather conditions.

n **Maximum load of tire**

Check that the maximum load of the replacement tire is greater than 1/2 of the Gross Axle Weight Ratings (GAWR) of either the front axle or the rear axle, whichever is greater.

For the GAWR, see the Certification Label. For the maximum load of the tire, see the load limit at maximum cold tire inflation pressure mentioned on the sidewall of the tire. (→P. 503)

n **Tire types**

1 Summer tires

Summer tires are high-speed performance tires best suited to highway driving under dry conditions. Since summer tires do not have the same traction performance as snow tires, summer tires are inadequate for driving on snow-covered or icy roads. For driving on snow-covered roads or icy roads, the use of snow tires is recommended. When installing snow tires, be sure to replace all four tires.

2 All season tires

All season tires are designed to provide better traction in snow and to be adequate for driving in most winter conditions, as well as for use year round. All season tires, however, do not have adequate traction performance compared with snow tires in heavy or loose snow. Also, all season tires fall short in acceleration and handling performance compared with summer tires in highway driving.

3 Snow tires

For driving on snow-covered roads or icy roads, we recommend using snow tires. If you need snow tires, select tires of the same size, construction and load capacity as the originally installed tires. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restriction. Snow tires should be installed on all wheels. (→P. 192)

n **Initializing the tire pressure warning system**

Initialize the tires with the tire inflation pressure adjusted to the specified level.

n **If you push the tire pressure warning reset switch accidentally**

If initialization is performed, adjust the tire inflation pressure to the specified level and initialize the tire pressure warning system again.

n **When the initialization of the tire pressure warning system has failed**

Initialization can be completed in a few minutes. However, in the following cases, the settings have not been recorded and the system will not operate properly. If repeated attempts to record tire inflation pressure settings are unsuccessful, have the vehicle inspected by your Lexus dealer.

l When operating the tire pressure warning reset switch, the tire pressure warning light does not flash 3 times and the setting message does not appear on the multi-information display.

l After carrying out the initialization procedure, the tire pressure warning light blinks for 1 minute then stays on after driving for about 20 minutes.

n **Routine tire inflation pressure checks**

The tire pressure warning system does not replace routine tire inflation pressure checks. Make sure to check tire inflation pressure as part of your routine of daily vehicle checks.

n **Tire pressure warning system certification**

MODEL/FCC IDs:

Transmitter: PAXPMV107J

Receiver: HYQ13BCE

IC (Canada) IDs:

Transmitter: 3729A-PMV107J

Receiver: 1551A-13BCE

▶ For vehicles sold in the U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

▶ For vehicles sold in Canada

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAUTION

When inspecting or replacing tires

Observe the following precautions to prevent accidents.
Failure to do so may cause damage to parts of the drive train, as well as dangerous handling characteristics, which may lead to an accident resulting in death or serious injury.

- Do not mix tires of different makes, models or tread patterns. Also, do not mix tires of remarkably different treadwear.
- Do not use tire sizes other than those recommended by Lexus.
- Do not mix differently constructed tires (radial, bias-belted or bias-ply tires).
- Do not mix summer, all season and snow tires.

When initializing the tire pressure warning system

Do not press the satellite switch without first adjusting the tire inflation pressure to the specified level. Otherwise, the tire pressure warning light may not come on even if the tire inflation pressure is low, or it may come on when the tire inflation pressure is actually normal.

NOTICE

Repairing or replacing tires, wheels, tire pressure warning valves and transmitters and tire valve caps

- When removing or fitting the wheels, tires or the tire pressure warning valves and transmitters, contact your Lexus dealer as the tire pressure warning valves and transmitters may be damaged if not handled correctly.
- When replacing tire valve caps, do not use tire valve caps other than those specified. The cap may become stuck.

To avoid damaging the tire pressure warning valves and transmitters

Do not use liquid sealants on flat tires.

NOTICE

- **Driving on rough roads**

  Take particular care when driving on roads with loose surfaces or pot holes.
  These conditions may cause losses in tire inflation pressure, reducing the cushioning ability of the tires. In addition driving on rough roads may cause damage to the tires themselves, as well as the vehicle's wheels and body.

- **Low profile tires**

  Low profile tires may cause greater damage than usual to the tire wheel when receiving impact from the road surface. Therefore pay attention to the following:

  - Be sure to use proper tire inflation pressure. If tires are under-inflated, they may be damaged more severely.
  - Avoid pot holes, uneven pavement, curbs and other road hazards.
    Failure to do so can lead to severe tire and wheel damage.

- **If tire inflation pressure becomes low while driving**

  Do not continue driving, or your tires and/or wheels may be ruined.

Tire inflation pressure

Tire inflation pressure

The recommended cold tire inflation pressure and tire size is displayed on the tire and loading information label. (→P. 498)

Inspection and adjustment procedure

1 Tire valve

2 Tire pressure gauge

STEP 1 Remove the tire valve cap.

STEP 2 Press the tip of the tire pressure gauge onto the tire valve.

STEP 3 Read the pressure using the graduations of the gauge.

STEP 4 If the tire inflation pressure is not within the recommended levels, adjust the pressure.
If you add too much air, press the center of the valve to lower.

STEP 5 After completing the tire inflation pressure measurement and adjustment, apply soapy water to the valve and check for leakage.

STEP 6 Reinstall the tire valve cap.

Tire inflation pressure check interval

You should check tire inflation pressure every two weeks, or at least once a month. Do not forget to check the spare.

Effects of incorrect tire inflation pressure

Driving with incorrect tire inflation pressure may result in the following:

- Reduced fuel efficiency
- Reduced driving comfort and tire life
- Reduced safety
- Damage to the drive train

If a tire needs frequent refilling, have it checked by your Lexus dealer.

Instructions for checking tire inflation pressure

When checking tire inflation pressure, observe the following:

- Check only when the tires are cold.
  If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km, you will get an accurate cold tire inflation pressure reading.
- Always use a tire pressure gauge.
  The appearance of the tire can be misleading. In addition, tire inflation pressures that are even just a few pounds off can degrade ride and handling.
- Do not bleed or reduce tire inflation pressure after driving. It is normal for the tire inflation pressure to be higher after driving.
- Never exceed the vehicle capacity weight.
  Passengers and luggage weight should be placed so that the vehicle is balanced.

CAUTION

■ **Proper inflation is critical to save tire performance**

Keep your tires properly inflated. Otherwise, the following conditions may occur and result in an accident causing death or serious injury.

- Excessive wear
- Uneven wear
- Poor handling
- Possibility of blowouts resulting from overheated tires
- Poor sealing of the tire bead
- Wheel deformation and/or tire separation
- A greater possibility of tire damage from road hazards

NOTICE

■ **When inspecting and adjusting tire inflation pressure**

Be sure to reinstall the tire valve caps.
Without the valve caps, dirt or moisture could get into the valve and cause air leakage, which could result in an accident. If the caps have been lost, replace them as soon as possible.

Wheels

If a wheel is bent, cracked or heavily corroded, it should be replaced. Otherwise, the tire may separate from the wheel or cause loss of handling control.

■ Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and inset *.
Replacement wheels are available at your Lexus dealer.

*: Conventionally referred to as “offset”.

Lexus does not recommend using:

- Wheels of different sizes or types
- Used wheels
- Bent wheels that have been straightened

■ Aluminum wheel precautions

- Use only Lexus wheel nuts and wrenches designed for use with your aluminum wheels.
- When repairing or changing your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- Use only Lexus genuine balance weights or equivalent and a plastic or rubber hammer when balancing your wheels.

■ When replacing wheels

The wheels of your Lexus are equipped with tire pressure warning valves and transmitters that allow the tire pressure warning system to provide advanced warning in the event of a loss in tire inflation pressure. Whenever wheels are replaced, the tire pressure warning valves and transmitters must be installed. (→P. 387)

Tire and wheel replacement

Each tire and wheel is designed only for its original position on the vehicle.
Therefore, when replacing tires and wheels make sure that they are fitted in the position indicated on the reverse side of the wheel.

"FR": Front right-hand side

"FL": Front left-hand side

"RR": Rear right-hand side

"RL": Rear left-hand side

 CAUTION

When replacing wheels

- Do not use wheels that are a different size from those recommended in the Owner's Manual, as this may result in loss of handling control.
- Never use an inner tube in a leaking wheel which is designed for a tubeless tire. Doing so may result in an accident, causing death or serious injury.

NOTICE

Replacing tire inflation pressure warning valves and transmitters

- Because tire repair or replacement may affect the tire pressure warning valves and transmitters, make sure to have tires serviced by your Lexus dealer or other qualified service shop. In addition, make sure to purchase your tire pressure warning valves and transmitters at your Lexus dealer.
- Ensure that only genuine Lexus wheels are used on your vehicle.
  Tire pressure warning valves and transmitters may not work properly with non-genuine wheels.

Air conditioning filter

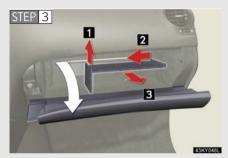
The air conditioning filter must be cleaned or changed regularly to maintain air conditioning efficiency.

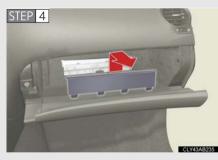
Removal method

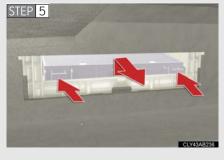
STEP 1 Set the air conditioning system to recirculated mode.

The air conditioning filter case cannot be removed with the system in the outside air mode.

STEP 2 Turn the "ENGINE START STOP" switch to OFF.

STEP 3

Open the glove box. Lift and remove the partition.

STEP 4

Remove the filter cover.

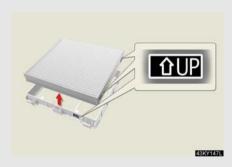
STEP 5

Remove the filter case.

Cleaning method

If the filter is dirty, clean by blowing compressed air through the filter from the downward side.

Hold the air gun 2 in. (5 cm) from the filter and blow for approximately 2 minutes at 72 psi (500 kPa, 5.0 kgf/cm^2 or bar).

If it is not available, have the filter cleaned by your Lexus dealer.

Replacement method

Remove the air conditioning filter from the filter case and replace it with a new one.

The "↑UP" marks shown on the filter and the filter case should be pointing up.

Checking interval

Inspect and replace the air conditioning filter according to the maintenance schedule. In dusty areas or areas with heavy traffic flow, early replacement may be required. (For scheduled maintenance information, please refer to the "Warranty and Services Guide/Owner's Manual Supplement/Scheduled Maintenance".)

If air flow from the vents decreases dramatically

The filter may be clogged. Check the filter and replace if necessary.

NOTICE

To prevent damage to the system

- When using the air conditioning system, make sure that a filter is always installed.
- When cleaning the filter, do not clean the filter with water.

Electronic key battery

Replace the battery with a new one if it is discharged.

You will need the following items:

- Flathead screwdriver
- Small Phillips-head screwdriver
- Lithium battery (CR1632)

Replacing the battery

STEP 1

Take out the mechanical key.

STEP 2

Remove the cover.

STEP 3

Remove the depleted battery.

Insert a new battery with the "+" terminal facing up.

■ **If the electronic key battery is discharged**

The following symptoms may occur.

- The smart access system with push-button start and wireless remote control will not function properly.
- The operational range is reduced.

■ **Use a CR1632 lithium battery**

- Batteries can be purchased at your Lexus dealer, jewelers, or camera stores.
- Replace only with the same or equivalent type recommended by a Lexus dealer.
- Dispose of used batteries according to the local laws.

■ **When the card key battery needs to be replaced (Canada only)**

The battery for the card key is available only at Lexus dealers. Your Lexus dealer can replace the battery for you.

■ **Removed battery and other parts**

Keep away from children.
These parts are small and if swallowed by a child they can cause choking.

■ **For normal operation after replacing the battery**

Observe the following precautions to prevent accidents.

- Always work with dry hands.
  Moisture may cause the battery to rust.
- Do not touch or move any other components inside the remote control.
- Do not bend either of the battery terminals.

Checking and replacing fuses

If any of the electrical components do not operate, a fuse may have blown. If this happens, check and replace the fuses as necessary.

STEP 1 Turn the "ENGINE START STOP" switch to OFF.

STEP 2 Engine compartment (type B): Remove the engine compartment cover. (→P. 373)

STEP 3 Open the fuse box cover.

▶ Engine compartment (type A)

Push the tabs in and lift the lid off.

▶ Engine compartment (type B)

Push the tabs in and lift the lid off.

▶ Driver's side instrument panel

Remove the lid.

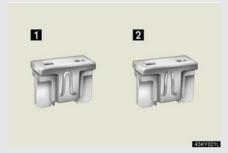
▶ Passenger's side instrument panel

Remove the lid.

STEP 4 After a system failure, see “Fuse layout and amperage ratings” (→P. 412) for details about which fuse to check.

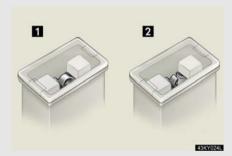
Remove the fuse with the pull-out tool.

STEP 6 Check if the fuse has blown.

▶ Type A

1 Normal fuse

2 Blown fuse

Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type B

1 Normal fuse

2 Blown fuse

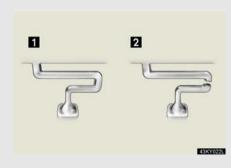
Replace it with one of an appropriate amperage rating. The amperage rating can be found on the fuse box lid.

▶ Type C

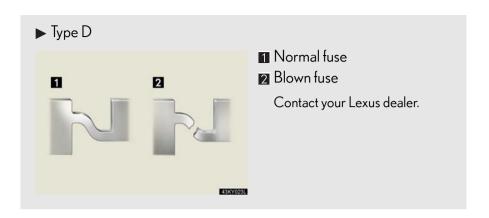
1 Normal fuse

2 Blown fuse

Contact your Lexus dealer.

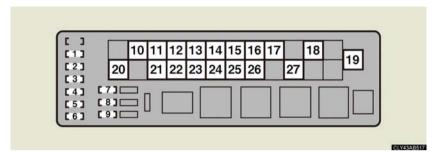
▶ Type D

1 Normal fuse

2 Blown fuse

Contact your Lexus dealer.

Removing the front controller (engine compartment: type B)

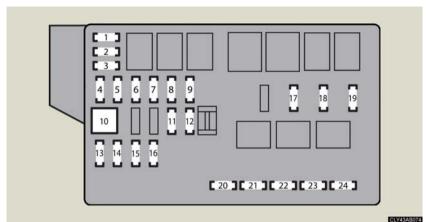
Lift the lid off while pushing the tabs on either side.

Fuse layout and amperage ratings

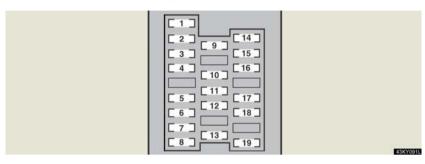
Engine compartment (type A)

	Fuse	Ampere	Circuit
1	ALT-S	7.5 A	Charging system
2	TURN-HAZ	15 A	Emergency flashers, turn signals
3	IG2 MAIN	20 A	IG2, IGN, GAUGE
4	RAD NO. 2	30 A	Audio system
5	D/C CUT	20 A	DOME, MPX-B
6	RAD NO. 1	30 A	Audio system
7	MPX-B	10 A	Headlights, front fog lights, parking lights, windshield washer, horns, power door lock system, power windows, power seats, electric tilt and telescopic steering column, meters and gauges, smart access system with push-button start, outside rear view mirrors, air conditioning system
8	DOME	10 A	Interior lights, meters and gauges, front footwell lights
9	CDS	10 A	Electric cooling fans

Fuse		Ampere	Circuit
10	E/G-B	60 A	FR CTRL-B, ETCS, A/F, STR LOCK, INJ2, TEL
11	P/I-B	60 A	EFI, F/PMP, INJ
12	ABS 1	50 A	VDIM
13	RH J/B-B	30 A	FR DOOR RH, RR DOOR RH, AM2
14	VVT	40 A	Multiport fuel injection system/ sequential multiport fuel injection system
15	MAIN	30 A	H-LP R LWR, H-LP L LWR, headlight low beams
16	STARTER	30 A	Smart access system with push-button start
17	LH J/B-B	30 A	FR DOOR LH, RR DOOR LH, SECURITY
18	EPS	80 A	Electric power steering
19	ALT	180 A	LH J/B-AM, E/G-AM, HEATER, FAN1, FAN2, DEFOG, RH J/B-AM, ABS 2
20	LH J/B-AM	80 A	S/ROOF, FR P/SEAT LH, TV NO.1, A/C, F/OPN, PSB, FR WIP, H-LP LVL, LH-IG, ECU-IG LH, PANEL, TAIL, MIR HTR, TV NO. 2, FR S/HTR LH
21	RH J/B-AM	80 A	OBD, STOP SW, TI&TE, FR P/SEAT RH, RAD NO. 3, ECU-IG RH, RH-IG, FR S/HTR RH, ACC, CIG, PWR OUTLET
22	ABS2	30 A	VDIM
23	DEFOG	50 A	Rear window defogger

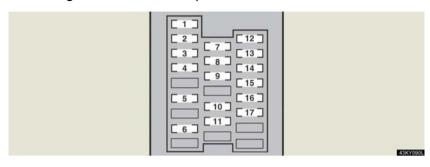
Fuse		Ampere	Circuit
24	FAN2	40 A	Electric cooling fans
25	FAN1	40 A	Electric cooling fans
26	HEATER	50 A	CDS, air conditioning system
27	E/G-AM	60 A	H-LP CLN, FR CTRL AM

Engine compartment (type B)

Fuse		Ampere	Circuit
1	SPARE	30 A	Spare fuse
2	SPARE	25 A	Spare fuse
3	SPARE	10 A	Spare fuse
4	FR CTRL-B	25 A	HORN, H-LP HI
5	A/F	15 A	Exhaust system
6	ETCS	10 A	Multiport fuel injection system/ sequential multiport fuel injection system
7	TEL	10 A	Safety connect
8	INJ2	25 A	Multiport fuel injection system/ sequential multiport fuel injection system
9	STR LOCK	25 A	Steering lock system
10	H-LP CLN	30 A	Headlight cleaner
11	DEICER	25 A	———
12	FR CTRL-AM	30 A	FR FOG, WASHER, FR TAIL

Fuse		Ampere	Circuit
13	IG2	10 A	Ignition system
14	EFI NO. 2	10 A	Fuel system, exhaust system, multiport fuel injection system/sequential multiport fuel injection system
15	H-LP R LWR	15 A	Headlight low beam (right)
16	H-LP L LWR	15 A	Headlight low beam (left)
17	F/PMP	25 A	Fuel system
18	EFI	25 A	Multiport fuel injection system/sequential multiport fuel injection system
19	INJ	25 A	Multiport fuel injection system/sequential multiport fuel injection system
20	H-LP UPR	15 A	Headlight beams
21	HORN	10 A	Horns
22	WASHER	20 A	Windshield washer
23	FR TAIL	10 A	Parking lights, side marker lights
24	FR FOG	15 A	Front fog lights

Driver's side instrument panel

	Fuse	Ampere	Circuit
1	FR P/SEAT LH	30 A	Power seat
2	A/C	7.5 A	Air conditioning system
3	MIR HTR	15 A	Outside rear view mirror defoggers
4	TV NO.1	10 A	Display
5	FUEL OPEN	10 A	Fuel filler door opener
6	TV NO. 2	7.5 A	———
7	PSB	30 A	Pre-collision seat belt
8	S/ROOF	25 A	Moon roof
9	TAIL	10 A	Tail lights, license plate lights, rear side marker lights
10	PANEL	7.5 A	Switch illumination, air conditioning system, display, safety connect, cigarette lighter illumination, shift lever light, instrument panel lights
11	RR FOG	7.5 A	———
12	ECU-IG LH	10 A	Cruise control, air conditioning system, electric power steering, shift lock system, moon roof, tire inflation pressure warning system

Fuse		Ampere	Circuit
13	FR S/HTR LH	15 A	Seat heaters
14	RR DOOR LH	20 A	Power windows
15	FR DOOR LH	20 A	Power windows, outside rear view mirror (left)
16	SECURITY	7.5 A	Smart access system with push-button start
17	H-LP LVL	7.5 A	AFS
18	LH-IG	10 A	Charging system, headlight cleaner, rear window defogger, electric cooling fans, emergency flashers, turn signal lights, back-up lights, stop lights, outside rear view mirror defoggers, seat belts, intuitive parking assist, air conditioning system
19	FR WIP	30 A	Windshield wipers

Passenger's side instrument panel

	Fuse	Ampere	Circuit
1	FR P/SEAT RH	30 A	Power seat
2	DOOR DL	15 A	———
3	OBD	7.5 A	On-board diagnosis system
4	STOP SW	7.5 A	Stop lights, VDIM, shift lock system
5	TI & TE	20 A	Electric tilt and telescopic steering column
6	RAD NO. 3	10 A	Audio system
7	GAUGE	7.5 A	Meters and gauges
8	IGN	10 A	SRS airbag system, stop lights, steering lock system, fuel system, front passenger occupant classification system, safety connect
9	ACC	7.5 A	Clock, air conditioning system, audio system, navigation system, display, outside rear view mirrors, smart access system with push-button start, glove box light, console box light, safety connect
10	CIG	15 A	Cigarette lighter
11	PWR OUTLET	15 A	Power outlet

Fuse		Ampere	Circuit
12	RR DOOR RH	20 A	Power windows
13	FR DOOR RH	20 A	Power windows, outside rear view mirrors
14	AM2	7.5 A	Smart access system with push-button start
15	RH-IG	7.5 A	Seat belts, intuitive parking assist, automatic transmission, seat heaters
16	FR S/HTR RH	15 A	Seat heaters
17	ECU-IG RH	10 A	Power seats, smart access system with push-button start, outside rear view mirrors, VDIM, air conditioning system, pre-collision seat belt, electric tilt and telescopic steering, power windows, navigation system, headlights, front fog lights, parking lights, license plate lights, windshield washer

After a fuse is replaced

- If the lights do not turn on even after the fuse has been replaced, a bulb may need replacement. (→P. 424)
- If the replaced fuse blows again, have the vehicle inspected by your Lexus dealer.

If there is an overload in the circuits

The fuses are designed to blow before the entire wiring harness is damaged.

CAUTION

To prevent system breakdowns and vehicle fire

Observe the following precautions.
Failing to do so may cause damage, and possibly a fire or injury.

- Never use a fuse of a higher amperage rating than indicated, or use any other object in place of a fuse.
- Always use a genuine Lexus fuse or equivalent.
  Never replace a fuse with a wire, even as a temporary fix.
  This can cause extensive damage or even fire.
- Do not modify the fuses or the fuse box.

NOTICE

Before replacing fuses

Have the cause of electrical overload determined and repaired by your Lexus dealer.

Headlight aim

- **Removing the engine compartment cover.**

→P. 373

- **Vertical movement adjusting bolts**

1 Adjustment bolt A

2 Adjustment bolt B

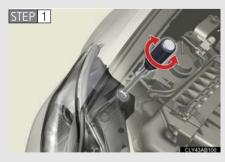
- **Before checking the headlight aim**

STEP 1 Make sure the vehicle has a full tank of gas and the area around the headlight is not deformed.

STEP 2 Park the vehicle on level ground.

STEP 3 Sit in the driver's seat.

STEP 4 Bounce the vehicle several times.

- **Adjusting the headlight aim**

STEP 1

Turn bolt A in either direction using a Phillips-head screw-driver.

Remember the turning direction and the number of turns.

Turn bolt B the same number of turns and in the same direction as step 1 using a Phillips-head screwdriver.

If the headlight cannot be adjusted using this procedure, take the vehicle to your Lexus dealer to adjust the headlight aim.

Light bulbs

You may replace the following bulbs yourself. For more information about replacing other light bulbs, contact your Lexus dealer.

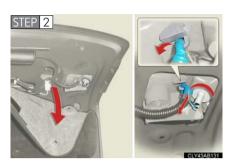
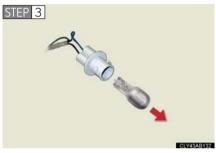
■ Preparing a replacement light bulb

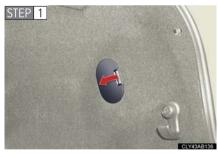
Check the wattage of the light bulb being replaced. (→P. 499)

■ Bulb locations

Replacing light bulbs

■ Back-up lights

Open the trunk door and remove the cover clips.

Partly remove the cover. Remove the wire harness and turn the bulb base counterclockwise.

Remove the light bulb.

Rear turn signal lights

Open the trunk door and remove the cover.

Remove the connector and turn the bulb base counterclockwise.

Remove the light bulb.

Bulbs other than the above

If any of the bulbs listed below has burnt out, have your Lexus dealer replace it.

- Headlight low and high beams (discharge bulbs)
- Headlight high beams
- Front fog lights
- Parking lights
- Front turn signal lights
- Front side marker lights
- Stop/tail lights
- Tail lights
- Rear side marker lights
- High mounted stoplight
- License plate lights

- **Condensation build-up on the inside of the lens**

  Contact your Lexus dealer for more information in the following situations. Temporary condensation build-up on the inside of the headlight lens does not indicate a malfunction.

  - Large drops of water are built up on the inside of the lens.
  - Water has built up inside the headlight.

- **Discharge headlights**

  If voltage to the discharge bulbs is insufficient, the bulbs may not come on, or may go out temporarily. The discharge bulbs will come on when normal power is restored.

- **LED tail lights, stop/tail lights and high mounted stoplight**

  The tail lights, stop/tail lights and high mounted stoplight consist of a number of LEDs. If any of the LEDs burn out, take your vehicle to your Lexus dealer to have the light replaced.

CAUTION

n **Replacing light bulbs**

l Turn off the lights. Do not attempt to replace the bulb immediately after turning off the lights.
The bulbs become very hot and may cause burns.

l Do not touch the glass portion of the light bulb with bare hands. Hold the bulb by the plastic or metal portion.
If the bulb is scratched or dropped it may blow out or crack.

l Fully install light bulbs and any parts used to secure them. Failing to do so may result in heat damage, fire, or water entering the headlight unit. This may damage the headlights or cause condensation to build up on the lens.

l Do not attempt to take apart or repair the low beam headlight bulbs, connectors, power supply circuits, or related components.
Doing so could result in electric shock and serious injury or death.

n **Discharge headlights**

l Contact your Lexus dealer before replacing discharge headlights (including light bulbs).

l Do not touch the high-intensity discharge headlight’s high voltage socket when the headlights are turned on.
An extremely high voltage of 20000 V will be discharged and could result in serious injury or death by electric shock.

n **To prevent damage or fire**

Make sure bulbs are fully seated and locked.